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ABSTRACT

This study investigated children's responses to failed attempts at reaching possible and impossible goals, and their beliefs about the efficacy of wishing as a magical solution in such situations. Preschoolers were presented with failure scenarios in three different formats: a standard picture book presentation, scenarios enacted in real life by the experimenters, and a photo book of the experimenters performing the action. Findings indicated that children's assessment of goal possibility was most adult-like in the "real life" depiction. When discussing a real-life possible goal, children were more likely to recommend that the actor try again and less likely to recommend making a wish or giving up. Children predicted success on second attempts if a different method was used or if a real actor used the same method. The findings suggest that preschool children do have the ability to distinguish the causal structure of the real universe from that of a fictional one. (EV)

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Children's understanding of means-ends relations in stories and real life

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Abstract

The present study draws on two lines of "theory of mind" research: children's understanding of the relationship between desires and intentions, as mental representations of goals and plans, and their understanding of fantasy versus reality. Preschoolers were presented with scenarios in which a character desired a possible or an impossible goal, and experienced failure, followed by a second attempt using either the same or a different method. These scenarios were presented in one of three ways: with cartoon-like depictions, vs. a real actor, vs. photographed actors. Children's assessment of goal possibility was most adult-like in real life. When discussing a real-life possible goal, children were more likely to recommend that the actor try again, and less likely to recommend making a wish or giving up. Success on second attempts was predicted if a different method was used, or if a real actor used the same method. These results suggest that preschool children do have the ability to distinguish the causal structure of the real universe from the fictional one.

The purpose of this study was to investigate children's understanding of actors' desires and intentions and the efficacy of perseverance or wishes, in stories and real life.

What do children think about the causal relationships among desires, intentions, actions and outcomes? Do they distinguish between wanting something and planning a way to achieve it--can a desire exist in the absence of a plan to obtain it? Does the desire itself influence the outcome—are wishes effective? (Woolley, Phelps, Davis, & Mandell, 1999) Many of the studies that have investigated these questions have employed a story format for questioning children (Mills & Shore, 2000; Schult, 1999). For example, in (Weissman, 1999), a character desired an impossible goal, and experienced failure in an attempt to get it. If this happened in the real world, the rational response would be to give up—the goal is not attainable, though it may still be desirable. But children argued for the character to try again. One explanation is that children cannot distinguish wanting something from intending to try to get it.

An alternative is that, rather than being "transparent," the story form itself may evoke a particular pattern of responses from children. In the story book world, protagonists often desire what appears to be unattainable, fail on the first attempt, and eventually succeed, sometimes through magical means (Mandler & DeForest, 1979; Trabasso & Stein, 1997). Several researchers have investigated children's understanding of the difference between fantasy/fictional events and real ones. For example, Samuels and Taylor

(1994) found that younger preschoolers (mean age 3; 10) were just as likely to say that a picture of a moose cooking in a kitchen was real as a picture of a girl riding a horse.

The purpose of the present study was to investigate children's responses to failed attempts at reaching possible and impossible goals, and their beliefs about the efficacy of wishing as a magical solution in such situations. We presented children with failure scenarios in three different formats: a standard "picture book" presentation, scenarios enacted in real life by the experimenters, and a "photo book" of the experimenters performing the actions.

Method

Participants

A total of 59 children participated (mean age = 56.1 months, ranging from 39.3 to 72.3). They were recruited from preschools in a small Midwestern college town, and reflected the demographics of that town, being predominantly European-American and children of faculty or staff at the college.

Condition	Gender	Mean age	Age range
Picture book	14 boys, 16 girls	55.7 mo.	39.3 mo. to 71.1 mo.
Real life	7 boys, 5 girls	60.6 mo.	54.2 mo. to 66.6 mo.
Photo book	7 boys, 10 girls	53.7 mo.	40.5 mo. to 72.3 mo.

Materials

The children were given 8 scenarios, constructed so that a character desired a possible or an impossible goal, and experienced failure, followed by the character trying again either the same way or a different method (2 Possible-Impossible x 2 Same-Different x 2 examples of each). Please see Table 1 for examples.

Procedure

After the general topic of the study was introduced, the experimenter indicated that they would be reading stories or watching the other experimenter try to do some actions, and that sometimes these did not work, so the child would be asked to decide what the character should do. All three conditions used a parallel questioning structure.

- The actor expressed a desire, or the character's goal was stated.
- The child was queried as to whether the actor/character can do that.
- The attempt and failure were presented.
- The child was queried whether the actor/character should do the same thing again, try a different way, make a wish, or give up by selecting a card with a symbol on it. The child's choice was confirmed orally.
- The character either tried the same way or a different method.
- The child was asked whether the new attempt would be successful.

Table 1

Scenarios used in picture book, real life and photo book conditions

Goal Possibility	Picture book task/goal action	Method 1 and Method 2 (if different)	Real life and photobook task /goal action	Method 1 and Method 2 (if different)
Possible	Make a basket.	Shoot the basketball (toward the hoop)	Make the ball go through the hoop	Shoot toward hoop
	Hit the ball (with a baseball bat).*	Swing the bat.	Catch the ball on the Velcro paddle	Hold out paddle to catch
	See what is on the other side of the (garden) wall*.	Climb over the wall.	Open the treasure box	Use key
		Tunnel under the wall.		Push button
	Unlock the door so his mom and sister can get inside. (He's shorter than the door knob).	Reach up to unlock the door.	Stand right here and reach the lion hanging on the mirror	Reach toward it.
		Stand on a chair.		Use "robot arm" grabber.

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Impossible	Fly.*	Jump out the tree with the wings she made.	Fly	Stand on tiptoe, flap arms
	Move the mountain away from his house.	Push it with a big log.	Make the wall move	Push against it with hands
	Reach the moon so she can wear it on her necklace.	Stand on top of tall building.	Reach in the mirror and get the other hat that looks just like that one.	Reach toward it Go outside to the other side of the mirror.
	Change his little brother into a dog.	Climb a tall tree. Make him wear a (dog) collar.	Make the toy doggie into a real one.	Put the leash on it Offer it dog food.
		Make him go into a doghouse.		

Note. * indicates that the actor was an animal, usually anthropomorphized.

Results

Three major questions drove our data analyses:

- Did children's judgments of goal possibility agree with those of adults,
- What strategy did the children recommend to the actor when the first attempt failed,
- Did the children believe that the second attempt would be successful?

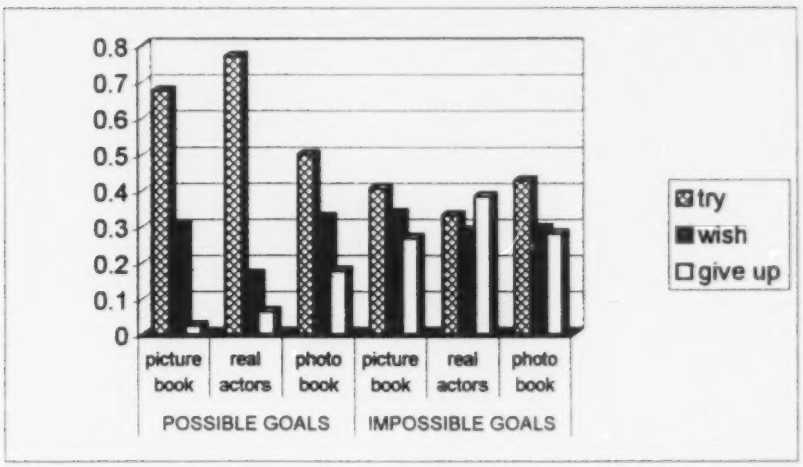
Judgments of the possibility of actions

We examined the percentage of times the child agreed with the adult's judgment of whether the action was possible (i.e., saying "yes" to possible actions, and "no" to impossible ones). Children agreed with adult judgments of goal attainability 86% of the time in the real condition, 70% of the time in the photo book condition, and 66% of the time in the picture book condition. These means were significantly different in a between-subjects ANOVA (F (2, 56) = 6.58, p = .003). Post-hoc comparisons indicated that agreement in the real condition was significantly higher than in either of the other two conditions (p in each case < .05).

Strategy recommendations following failure

A 3 (Format: Picture book, Real, Photo book) x 3 (Strategy: Try again, Wish, Give up) x 2 Possibility (Adult-judged Possible, Impossible) ANOVA (with Format as between-subjects, and age as a covariate) revealed a three-way interaction of Presentation Format, Possibility, and Strategy (F (4,110) = 2.79) p < .05). Age was not significant. A simple main effects analysis indicated that:

Condition	Significant differences in the Possible condition
Picture book	Children were most likely to say that the actor should try again, then make a wish, then give up.
Real life	Children were most likely to say that the character should try again, and the other two options did not differ.
Photo book	Children were most likely to say that the actor should try again, then give up, and wish was intermediate and equal to both

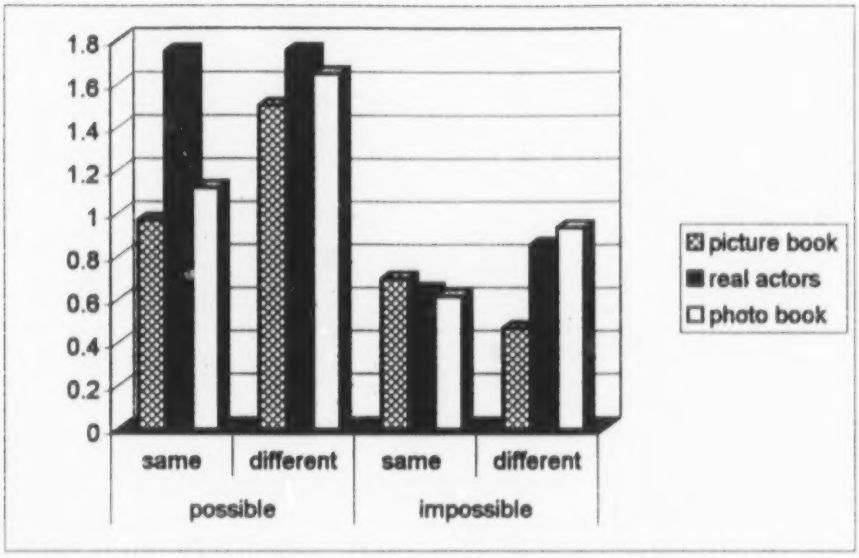


Judgements of success on second attempts

After the child recommended a strategy for the actor, the scenario continued, with the actor intending to try again either the same way or a different way. The dependent measure was the number of times (out of 2) that the child said "yes," the second attempt would be successful. These data were first grouped by whether the action was possible from an adult perspective, as shown below.

These means were compared in a 2 (Method: Same/Different) x 2 (Possibility: Adult-judged Possible vs. Impossible) x 3 (Format: Picture book, Real, Photo book) ANOVA (with Format as between-subjects, and age as a covariate). Age was not significant. This analysis revealed a significant three-way interaction among Method, Format and Possibility (F (2, 55) = 3.959, p = .025). A simple effects analysis showed that:

- In the possible stories, using the same method, children were more likely to believe that the actor would be successful than either of the book characters.
- The mean for a real actor using the same method was comparable to any actor using a different method to reach a possible goal.


1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
same
different
same
different
possible
impossible
picture book
real actors
photo book

Discussion

Our results lead us to question the popular view that preschoolers cannot distinguish between the causal structure of the real universe from the fictional one. Our results suggest that children are familiar with story grammars and know, at least to some extent, that the way the story world works is not the same as the way the real world works. Researchers using picture book methods need to be aware of the possibility that children may respond to their questions as though they were about the story book universe, rather than the real world.

Real world	Story book world
Generally agreed with adult assessments of goal attainability.	Agreed less often with adults about whether a goal was possible.
For possible goals, agreed with the adult assessment that one should try again if the goal is possible, and give up if it is not.	Less adult-like strategy recommendations, e.g., "make a wish" was a common response in every condition except a real actor facing a possible goal.
Second attempt at a possible goal would be more effective if the actor tried again the same way.	Second attempt at a possible goal would be successful if character tried again a different way. In stories, typically the protagonist changes strategy after the first failure.

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